

## **Background**

The Strategic Plan identifies the need to develop Performance Measures and Indicators to measure the success of SNC projects and programs, as well as progress toward improving the environmental, economic and social well-being of the Region. Indicators and Performance Measures are generally described as follows:

- **System Indicators** measure the well being of the Sierra Nevada Region. Examples include per capita income of Sierra residents, measures of water quality and acres treated for fuels reduction. Indices are groups of Indicators.
- **Program Performance Measures** track progress in achieving program goals and meeting the SNC's overall mission. Examples include the total number of acres protected by SNC-funded conservation easements, recreational visitor days on public lands, and measures of increased collaboration resulting from SNC-funded projects.
- **Project Outcome Performance Measures** track project efforts against the expected outcomes. Examples include miles of trails constructed, tons of carbon sequestered/avoided, and number of archeological sites protected as a result of a project.

At the July, 2007 meeting, the Board approved an overall process for the development and use of Indicators and Performance Measures.

At the December, 2007 meeting, the Board approved an interim list of Performance Measures specifically for projects awarded during the 2007-08 grant cycle through Proposition 84 funding. This comprised the initial stage of the overall effort.

At the March, 2008 meeting, the Board was provided an overview of project accomplishments at that time, including a preliminary 'conceptual' lists of System Indicators and Performance Measures, as well as an approach to completing the analysis. The Chairman appointed Boardmembers Carol Whiteside and Robert Weygandt to serve as members of a committee to guide this project.

At the June 2008 meeting, the Board approved a final list of Performance Measures and was also provided an overview of draft implementation considerations.

## **Current Status**

Program and Project Performance Measures (PMs) approved by the Board are being implemented. These measures have been made available to grantees including instructions for selecting the PM(s) appropriate to the proposed project and reporting PM information to SNC.

Indicators have now been divided into two groups, as described below:

- **Core System Indicators** included in Attachment A of this Staff Report represent a set of 19 Core System Indicators to be implemented by the SNC. These indicators comprise a set of information that will be of primary use in SNC decision-making processes. Thus, the SNC will take a leadership role in facilitating the development of these indicators and compiling the resulting data for use by SNC and others. Actual development of these Core System Indicators may be done by the SNC or in partnership with other entities that have an interest in the indicators and/or resources to assist with this effort.
- Initial **Comprehensive System Indicators** have been identified in Attachment B and represent a starting point for development of a broader set of such indicators. This set of indicators would provide information to assess the overall sustainability of the Region. While these indicators would also be of value in SNC decision-making, they do not necessarily have a direct nexus to SNC mission, goals and objectives or they appear infeasible to be developed in the short term. Implementation of Comprehensive System Indicators would require significant resources, well beyond the means of the SNC. The SNC sees its role in implementing these indicators as one of convening partners to determine interest in and feasibility of this effort. This initial list of indicators would be adjusted based on input from partners and availability of data and funding.

**Use of Core Indicators:** The Core System Indicators are designed to be used internally, by the SNC staff and Board, and externally by SNC constituents, partners and other interested parties, both public and private. The indicators may be used individually, or considered in concert with other associated indicators. Some indicators may only be available at the Regional level. Others will be available at the Subregional, county, and/or community levels as well. The indicators will be used to promote:

- ✓ Regional Understanding—provide tools to understand the state of the Sierra Nevada system and changes in the system, as well as to appreciate the importance of the Region
- ✓ Sound investments—help to assess investments in the Region, understand the impact of those investments, and determine where to invest in the future
- ✓ Strategic Planning—provide information that will support sound decisions about future direction

- ✓ Adaptive Management—provide information that will support an iterative process for optimal decision-making, implementation, evaluation of results, and adaptation
- ✓ Communications and Outreach—provide data and trends to support implementation of the SNC Communications Plan
- ✓ Reporting—provide regularly collected data that can be used to report results of SNC efforts and the efforts of its partners, as well as certain aspects of the state of the Region.

### **Next Steps**

- **Development of Governance and Implementation Plan:** Over the next few months, the project team will work with SNC staff to develop a final Governance and Implementation Plan (the Plan) for Core Indicators. The Plan will describe the relationship of Performance Measures and System Indicators to program improvement and future strategic planning processes. It will also define cycles of data collection and reporting.
- **Implementation of Core Indicators:** The SNC will begin implementation of ‘Core’ System Indicators after completion of the Governance and Implementation plan. Our initial estimate is that the cost of implementation of the Core Indicators will be \$120,000 to \$150,000, with an on-going expense for updating data. The SNC will work with partners and other interested parties to secure financial and/or informational assistance with this effort. One factor that could drive up the cost of collecting data for some of the system indicators is the need to make county-level information relevant to the Sierra Nevada Region, since county and Regional boundaries do not always align.

The process to develop core indicators will include:

- Identification of Partners—the cultivation of partners to assist with development or data collection for each indicator as appropriate
- Identification of Resources Needed—development of estimated time and materials cost for each indicator and aggregated for total project
- Adoption of Data Collection Protocols—to be based on data sources and contribution of partners if appropriate
- Agreement on Presentation of Indicator—development of the graphic display of the information
- Data Population—collection of data based on the protocols, the timing of which will vary depending upon indicator

- Aggregation and Analysis of Indicators—compilation of all indicators together along with an analysis of what they tell us, released upon achievement of a critical mass of the indicators

The list of core indicators may be adjusted as these steps are carried out and the SNC discovers that it is unfeasible or impractical to collect data for a System Indicator as it was originally proposed. In those instances, the SNC will look for similar data or different data that will illuminate the same program area. The SNC may also identify other indicators for which data is readily available that would be useful.

- **Development of Comprehensive Indicators:** The SNC will begin exploring the interest in and potential for implementing Comprehensive System Indicators concurrent with its implementation of its own Core System Indicators. As an initial step, the SNC will identify likely partners based on existing entities collecting and projecting indicators, institutions with capacity to develop indicators, likely users of indicators and potential sources of funding for indicators. The SNC will then convene these entities to determine their interest in and capacity for developing and maintaining a comprehensive set of System Indicators and facilitate a process for determining appropriate roles and responsibilities for each partner, including the SNC.

The SNC has prepared a preliminary set of Comprehensive Indicators that will be used to engage stakeholders in initial discussions. The Comprehensive System Indicators would support all of the functions described above. However, because they provide information on a broader set of conditions within the Sierra Nevada, they would support broader and more complex analysis and reporting. They would also be useful to a broader array of stakeholders within the Region and would point to more opportunities for Regional collaboration and policy investments.

It is important to note that successful development of such indicators will require significant engagement and contributions from a broad array of parties interested in the Sierra Nevada Region.

### **Recommendation**

**Staff recommends that the Board approve the Core Indicators described in Attachment A and authorize staff to make changes as necessary, with a report to the Board on any modifications. It is also recommended that the Board direct staff to proceed with exploring interest in and feasibility of implementing Comprehensive System Indicators as provided in Attachment B.**

## “Core” System Indicators

### Core System Indicators Summary Descriptions

#### **Human Population**

Measures the number of people living in a specific geographical area. Change in population over time measures population growth

#### **Demographics of Residents**

Measures ages, gender, educational attainment, ethnicity, etc of people living in, moving into and moving out of the region.

#### **Gross Domestic Product**

Measures the incomes and outputs of the economy in a specific region.

#### **Median Income**

Measures the midpoint of income for a specific population within a geographic area.

#### **Employment and Income by Economic Sector**

Measures the number of and percent of jobs and percent of personal income provided by each sector and sub-sector of the economy.

#### **Access to High Speed Internet**

Measures availability of and access to high speed communications and internet by speed and per cent of population.

#### **Acres of Land Conserved**

Measures the total acreage of lands conserved (both public and private).

#### **Acres of Working Landscapes**

Measures the total acreage of lands in working landscapes; total acreage and percentage of lands enrolled, but non-renewed in the Williamson Act, total acreage and percentage of lands enrolled, but not renewed in Timberland Production Zones (TPZ), and the total yield tax derived per county from TPZ and non-TPZ lands.

#### **Travel and Tourism Spending**

Measures the total spending derived from each sector of the hospitality industry based on sales tax receipts and reports based on the industry standard formula on additional spending attributed to the travel and tourism industry.

#### **Air Quality (PM 10, PM 2.5)**

Measures days exceeding Environmental Protection Agency standards for particulate matter suspended in the air in 10 micron and 2.5 micron sizes.

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**Air Quality (Ozone)**

Measures hours exceeding Environmental Agency Standards in parts per million by location and duration of exposure.

**Acres Treated for Fuels Reduction by Risk Category**

Measures the total number of acres of forest and grassland treated with fuel reduction and fuels management projects, and broken down by risk category as established by Cal Fire.

**Public/Private Lands Forest Health**

Measures site productivity, forest type, forest age, mortality, basal area, ozone, erosion, lichens, vegetation, and down woody material, on public and private lands reported as an index of forest health.

**Percent Change in Temperature, Precipitation and Snow Pack**

Measures temperature, precipitation, and snow pack in specific areas of the region, and by watershed and the change in degrees and inches and as a percentage.

**Total Quantity and Value of Water Exports**

Measures total quantity of water exports in acre feet and the value of water exports based on existing commodity value.

**Carbon Storage and Net Annual Sequestration on Public and Private Forests**

Measures total tons per hectare of carbon sequestered in the region, on public and private lands, and the change in tons per hectare per year, based on direct measurement and standard formulae.

**MWH of Energy Produced by Renewable and Distributed Energy Sources**

Measures total energy production in the region; energy used within and exported from the region; total energy produced by renewable sources in the region; renewable energy used within and exported from the region.

**Water Quality – Impaired Water Bodies**

Measures, by watershed and sub watershed, sources of impairment and amount of pollutant considered to cause impairment, for each water body listed as impaired in the region.

**Change in Habitat – Wildlife Habitat Relationship**

Measures the change in wildlife habitat and the relationship between change in wildlife habitat and individual species distribution, abundance and territory, as measured by the California Department of Fish and Game,

## Core System Indicators Details

Human Population			
Latest Revision:		July 30, 2008	Updated By: Krissy Gilbert/Steve Frisch
<b>1.0 System Indicator Summary</b>			
Human population figures track the number of people living in a specific geographical area. The change in population over time gives the rate of population growth.			
<b>2.0 Relevance to SNC Program Areas or Mission</b>			
The size of the Sierra's population and the rate of population growth directly affect social, environmental, and economic well being in the Sierra Nevada. This indicator is related to the SNC's mission and program areas as population influences land use, resource conservation, economic opportunities, and quality of life issues.			
<b>3.0 Related Performance Measures</b>			
Provides context to help support Performance Measures			
<b>4.0 Data Collection, Analysis &amp; Reporting</b>			
Data reports are available on Department of Finance and Census Bureau websites			
<b>4.1 Data Source(s)</b>			
Data Source: California Department of Finance Scale of data reporting: County; City Scale of data collection: County; City Frequency of data reporting: Annual (projection based on four parameters – see below)			
Data Source: US Census Bureau Scale of data reporting: zip Scale of data collection: census block Frequency of data reporting: 10 Years—estimated annually			
<b>4.2 System Indicator Reporting</b>			
Report by community, county, sub-region and region			
<b>4.3 System Indicator Display and Historic Data</b>			
Number of people displayed in bar chart by sub-region today, five, and ten years ago. Population growth rates displayed in GIS map by zip code and assessed by sub-region. Provide raw data in Excel table.			
<b>5.0 Notes</b>			
Department of Finance makes annual estimates based upon driver's license, school enrollment, housing units, and deaths.			
<b>6.0 References Cited</b>			
Department of Finance ( <a href="http://www.dof.ca.gov/">http://www.dof.ca.gov/</a> ); Census Bureau ( <a href="http://www.census.gov/">http://www.census.gov/</a> )			

Demographics of Residents			
Latest Revision:		August 12, 2008	Updated By: Krissy Gilbert/Steve Frisch
<b>1.0 System Indicator Summary</b>			
Population demographics are often measures of age, income, gender, educational attainment, and ethnicity of the residents in a particular geographical area.			
<b>2.0 Relevance to SNC Program Areas or Mission</b>			
Demographic data are standard measures of the structure of communities and can help explain trends identified by other indicators.			
<b>3.0 Related Performance Measures</b>			
Provides context to help support Performance Measures			
<b>4.0 Data Collection, Analysis &amp; Reporting</b>			
Data are available online and free of charge			
<b>4.1 Data Source(s)</b>			
Data Source: California Department of Finance Scale of data reporting: County Scale of data collection: County Frequency of data reporting: 10-years (projection based on four parameters – see below)			
Data Source: US Census Bureau Scale of data reporting: zip Scale of data collection: census block Frequency of data reporting: 10 Years—estimated annually			
<b>4.2 System Indicator Reporting</b>			
Report by community, county, sub-region and region			
<b>4.3 System Indicator Display and Historic Data</b>			
Demographics of people displayed in bar chart by sub-region today, five, and ten years ago. Provide raw data in an Excel Table.			
<b>5.0 Notes</b>			
Can be expanded to more than 30 attributes relatively easily			
<b>6.0 References Cited</b>			
Department of Finance ( <a href="http://www.dof.ca.gov/">http://www.dof.ca.gov/</a> ); Census Bureau ( <a href="http://www.census.gov/">http://www.census.gov/</a> )			

Gross Domestic Product			
Latest Revision:		August 8, 2008	Updated By: Krissy Gilbert/Steve Frisch
<b>1.0 System Indicator Summary</b>			
The gross domestic product (GDP) is a measure of income and output of a given region's economy. It is defined as the total market value of all final goods and services produced within the region in a given period of time. It is advantageous to use GDP per capita data as an indicator of standard of living since it is measured frequently, widely and consistently. Data can be used to reflect income as well as expenditure flows.			
<b>2.0 Relevance to SNC Program Areas or Mission</b>			
This information can be used as an indicator of economic health, since standard of living tends to increase when GDP per capita increases.			
<b>3.0 Related Performance Measures</b>			
Resources Leveraged for the Sierra Nevada, Number and Type of Jobs Created, Number and Value of New, Improved or Preserved Economic Activities,			
<b>4.0 Data Collection, Analysis &amp; Reporting</b>			
Data are available online and free of charge			
<b>4.1 Data Source(s)</b>			
Data Source: California Department of Finance ( <a href="http://www.dof.ca.gov/">http://www.dof.ca.gov/</a> ) Scale of data reporting: State; commodity Scale of data collection: State; commodity Frequency of data reporting: Annual			
Data Source: California Department of Finance Scale of data reporting: County Scale of data collection: County Frequency of data reporting: Annually			
<b>4.2 System Indicator Reporting</b>			
Report by county, sub-region and region by commodity/sector.			
<b>4.3 System Indicator Display and Historic Data</b>			
Table			
<b>5.0 Notes</b>			
Marginal utility			
<b>6.0 References Cited</b>			
Department of Finance ( <a href="http://www.dof.ca.gov/">http://www.dof.ca.gov/</a> );			

Median Income	
Latest Revision: July 16, 2008	Updated By: Krissy Gilbert
<b>1.0 System Indicator Summary</b>	
The median household income is commonly used to provide data about geographic areas and divides households into equal segments with the first half of households earning less than the median household income and the other half earning more.	
<b>2.0 Relevance to SNC Program Areas or Mission</b>	
Using this data, SNC can determine growth or decline rates of median income in an area, and compare it to other regions, states, or the entire U.S. This indicates whether or not a region has the economic means to maintain a reasonable standard of living.	
<b>3.0 Related Performance Measures</b>	
Number and Type of Jobs Created, Number and Value of New, Improved or Preserved Economic Activities,	
<b>4.0 Data Collection, Analysis &amp; Reporting</b>	
Data are available online and free of charge	
<b>4.1 Data Source(s)</b>	
Data Source: US Census Bureau ( <a href="http://www.census.gov/">http://www.census.gov/</a> ) Scale of data reporting: Zip, City, County Scale of data collection: Census block Frequency of data reporting: 10years	
Data Source: California Department of Finance Scale of data reporting: County Scale of data collection: County Frequency of data reporting: Annually	
<b>4.2 System Indicator Reporting</b>	
Report by census blocks, community, county, sub-region and region	
<b>4.3 System Indicator Display and Historic Data</b>	
Line graph by sub-region over time	
<b>5.0 Notes</b>	
<b>6.0 References Cited</b>	
Department of Finance ( <a href="http://www.dof.ca.gov/">http://www.dof.ca.gov/</a> ); Census Bureau ( <a href="http://www.census.gov/">http://www.census.gov/</a> )	

Employment and Income by Economic Sector			
Latest Revision:		August 1, 2008	Updated By: Krissy Gilbert/Steve Frisch
<b>1.0 System Indicator Summary</b>			
Although there are different measures of economic diversity, employment by sector in terms of percent of jobs and percent personal income provided by that sector is useful in that it shows the social and community effects of economic diversity. In contrast, gross revenue by sector could skew meaningful measures of economic diversity in small economies. Economic diversity is particularly important in the Sierra Nevada and other rural regions that have experienced boom-and-bust cycles. High economic diversity is important for long term economic sustainability and socio-economic stability.			
<b>2.0 Relevance to SNC Program Areas or Mission</b>			
This indicator can be used by the SNC primarily as a measure of the regional economy and secondarily as a measure of tourism and recreation and working landscapes.			
<b>3.0 Related Performance Measures</b>			
Number and Type of Jobs Created, Number and Value of New, Improved or Preserved Economic Activities			
<b>4.0 Data Collection, Analysis &amp; Reporting</b>			
Data are available online and free of charge			
<b>4.1 Data Source(s)</b>			
Data Source: Employment Development Department <a href="http://www.labormarketinfo.edd.ca.gov/?PAGEID=166">http://www.labormarketinfo.edd.ca.gov/?PAGEID=166</a> Scale of data reporting: County Scale of data collection: County Frequency of data reporting: Monthly			
<b>4.2 System Indicator Reporting</b>			
Report at incorporated city, and county level on an annual or bi-annual basis			
<b>4.3 System Indicator Display and Historic Data</b>			
Bar graph of jobs and income per sector			
<b>5.0 Notes</b>			
<b>6.0 References Cited</b>			
<a href="http://www.labormarketinfo.edd.ca.gov/?PAGEID=166">http://www.labormarketinfo.edd.ca.gov/?PAGEID=166</a>			

Access to High Speed Internet			
Latest Revision:		July 27, 2008	Updated By: Krissy Gilbert/Steve Frisch
<b>1.0 System Indicator Summary</b>			
Availability and access to high speed Internet indicates more efficient communication, networking, research, and purchasing, resulting in an improved quality of life. Through Internet access, users benefit from increased communication and access to information as well as opportunities to work and perform other functions from remote locations.			
<b>2.0 Relevance to SNC Program Areas or Mission</b>			
This indicator can be used by the SNC primarily as a measure of regional economy and can also be a factor that influences air quality since access to high speed Internet enables residents to work and perform other functions remotely. By comparing data across the region, SNC can learn which parts of the region are benefiting from access, and which parts are in need of improvement.			
<b>3.0 Related Performance Measures</b>			
Provides context to help support Performance Measures			
<b>4.0 Data Collection, Analysis &amp; Reporting</b>			
Data are available online and free of charge			
<b>4.1 Data Source(s)</b>			
<b>Data Source:</b> California Broadband Initiative <a href="http://www.calink.ca.gov/default.asp">http://www.calink.ca.gov/default.asp</a> <b>Scale of data reporting:</b> Region (12 in State; differs from SNC region) <b>Scale of data collection:</b> City <b>Frequency of data reporting:</b> Once (2007)			
<b>4.2 System Indicator Reporting</b>			
Report by 100m polygons, aggregated to community, city, county, sub-region and region			
<b>4.3 System Indicator Display and Historic Data</b>			
Map showing underserved and served areas (already available)			
<b>5.0 Notes</b>			
List of underserved communities at <a href="http://www.calink.ca.gov/pdf/Unserved_Communities.pdf">http://www.calink.ca.gov/pdf/Unserved_Communities.pdf</a> 12 Regions do not reflect SNC Region			
<b>6.0 References Cited</b>			
<a href="http://www.calink.ca.gov/taskforcereport/">http://www.calink.ca.gov/taskforcereport/</a>			

Acres of Land Conserved/All Public-Private Landscapes Conserved			
Latest Revision:	September 4 , 2008	Updated By:	Christina Prestella/Steve Frisch
<b>1.0 System Indicator Summary</b>			
Measures the total acreage of lands and the total acreage of lands conserved, both public and private.			
<b>2.0 Relevance to SNC Program Areas or Mission</b>			
Conserved lands provide critical amenity, ecosystem service and biological diversity benefits. The SNC can use this indicator primarily as a measure of conserved land and secondarily as a measure of regional economy, tourism and recreation, natural disaster risk reduction, preservation of living, historical and cultural resources and water and air quality			
<b>3.0 Related Performance Measures</b>			
Acres of Land Conserved, Acres of Land Improved or Restored, Linear Feet of Stream Bank Protected or Restored, Number of New Recreation Access Points, Tons of Carbon Sequestered or Emissions Avoided			
<b>4.0 Data Collection, Analysis &amp; Reporting</b>			
Data is accessible at low resolution online as a map or GIS layer. Will require local collection for more specificity.			
<b>4.1 Data Source(s)</b>			
<b>Data Source:</b> California Department of Conservation <a href="http://www.consrv.ca.gov/dlrp/fmmp/Pages/Index.aspx">http://www.consrv.ca.gov/dlrp/fmmp/Pages/Index.aspx</a> <b>Scale of data reporting:</b> County <b>Scale of data collection:</b> 1:1,000 <b>Frequency of data reporting:</b> 2006			
<b>Data Source:</b> California Council of Land Trusts <b>Scale of data reporting:</b> County, Region <b>Scale of data collection:</b> 1:100,000 <b>Frequency of data reporting:</b> 2007 Assessment			
<b>4.2 System Indicator Reporting/</b>			
Report by various means at community, city, county, sub-region and region level. Inconsistent across region.			
<b>4.3 System Indicator Display and Historic Data</b>			
Data should be displayed in acres using maps			
<b>5.0 Notes</b>			
Acres Conserved will be aggregated by location from County, Pubic and Private Sources (Sierra Cascade Land Trust Council) (Survey) (Information Center on the Environment) (USFS) (BLM)			
<b>6.0 References Cited</b>			

Acres of Working Landscapes			
Latest Revision:	September 4, 2008	Updated By:	Christina Prestella/ Steve Frisch
<b>1.0 System Indicator Summary</b>			
The Williamson Act and Timber Land Production Zones are designed to preserve agricultural and timber lands and open space to encourage efficient urban growth patterns by providing property tax relief to landowners who want to continue resource production.			
<b>2.0 Relevance to SNC Program Areas or Mission</b>			
The SNC can use this information as measure of working landscapes and the regional economy			
<b>3.0 Related Performance Measures</b>			
Acres of Land Conserved, Acres of Land Improved or Restored, Tons of Carbon Sequestered or Emissions Avoided, Number and Type of Jobs Created			
<b>4.0 Data Collection, Analysis &amp; Reporting</b>			
Data is easily accessible online as a map or GIS layer.			
<b>4.1 Data Source(s)</b>			
Data Source: <a href="http://www.conservation.ca.gov/dlrp/lca/stats_reports/Pages/index.aspx">http://www.conservation.ca.gov/dlrp/lca/stats_reports/Pages/index.aspx</a>			
Scale of data reporting: County, State			
Scale of data collection: Zip Code			
Frequency of data reporting: Annual			
Data Source: State Board of Equalization			
Scale of data reporting: by County by parcel			
Scale of data collection:			
Frequency of data reporting: annual			
<b>4.2 System Indicator Reporting</b>			
Report by various means at community, city, county, sub-region and region level.			
<b>4.3 System Indicator Display and Historic Data</b>			
Indicator should be displayed by acre in map format			
<b>5.0 Notes</b>			
<b>6.0 References Cited</b>			
California Department of Conservation			

Tourism and Travel Spending	
Latest Revision: July 29, 2008	Updated By: Christina Prestella/Steve Frisch
<b>1.0 System Indicator Summary</b>	
The "Travel and Tourism industry" is defined as "the activities of persons traveling to and staying in places outside their usual environment for not more than one consecutive year for leisure, business and other purposes", providing an array of goods and services associated with an activity, resulting in employment and taxable sales. Visitors are attracted to the Sierra Nevada because of its outstanding natural and social capital. These visitors help build the Sierra's financial capital by supporting local jobs and generating billions of dollars in revenue for the private and public sectors.	
<b>2.0 Relevance to SNC Program Areas or Mission</b>	
The SNC can use this indicator primarily as a measure of the regional economy and tourism and recreation and secondarily as a measure of use and enjoyment of public lands	
<b>3.0 Related Performance Measures</b>	
Number and Value of New, Improved, or Preserved Economic Activities, Number and Type of Jobs Created, Feet of Trail/Path Length Constructed or Improved, Number of New Recreation Access Points	
<b>4.0 Data Collection, Analysis &amp; Reporting</b>	
Data is easily accessible online	
<b>4.1 Data Source(s)</b>	
<b>Data Source:</b> <a href="http://www.bea.gov/industry/iedguide.htm#ttsa">http://www.bea.gov/industry/iedguide.htm#ttsa</a> <b>Scale of data reporting:</b> State <b>Scale of data collection:</b> Business <b>Frequency of data reporting:</b> Annual	
<b>Data Source:</b> <a href="http://www.deanrunyan.com/pdf/ca07p.pdf">http://www.deanrunyan.com/pdf/ca07p.pdf</a> <b>Scale of data reporting:</b> County, State <b>Scale of data collection:</b> zip code <b>Frequency of data reporting:</b> annual	
<b>4.2 System Indicator Reporting</b>	
Report at city, county, sub-region and region level.	
<b>4.3 System Indicator Display and Historic Data</b>	
Should be reported in terms of earnings, employment and tax revenue, using graphs, maps, and charts	
<b>5.0 Notes</b>	
<b>6.0 References Cited</b>	
Bureau of Economic Analysis, Dean Runyan Assoc.	

Air Quality (Days Exceeding PM2.5 & PM10)	
Latest Revision:	July 29, 2008
Updated By:	Christina Prestella/Steve Frisch
<b>1.0 System Indicator Summary</b>	
Air quality is a measure of an important service provided by natural capital: the provision of air that is clean and does not negatively affect human health. Particulate matter is generated from a variety of sources, including diesel fuel emissions and agricultural operations. Because of the prevailing wind patterns, air pollution standards in the valley have a significant effect on the Sierra Nevada region.	
<b>2.0 Relevance to SNC Program Areas or Mission</b>	
This information can be used by the SNC primarily as a measure of air quality and to educate policy makers on levels and methods to lower emissions.	
<b>3.0 Related Performance Measures</b>	
Tons of Carbon Sequestered or Emissions Avoided, Mass of Pollutant Reduced Per Year, Kilowatts of Renewable Energy Production Capacity Maintained or Created.	
<b>4.0 Data Collection, Analysis &amp; Reporting</b>	
Data is easily accessible online	
<b>4.1 Data Source(s)</b>	
<b>Data Source:</b> <a href="http://www.arb.ca.gov/aqd/aqd.htm">www.arb.ca.gov/aqd/aqd.htm</a> <b>Scale of data reporting:</b> County, Air Basin, or part of state <b>Scale of data collection:</b> monitoring stations <a href="http://www.arb.ca.gov/aqd/netrpt/allmap.pdf">http://www.arb.ca.gov/aqd/netrpt/allmap.pdf</a> <b>Frequency of data reporting:</b> Hourly	
<b>4.2 System Indicator Reporting/Scale</b>	
Report at community, city, county, sub-region and region level. Inconsistent across region.	
<b>4.3 System Indicator Display and Historic Data</b>	
Data can be reported PM-10 or PM-2.5 in micrograms/cubic meter, using graphs, over time	
<b>5.0 Notes</b>	
<b>6.0 References Cited</b>	
California Air Resources Board	

Air Quality (Days Exceeding Ozone Standards)	
Latest Revision:	July 29, 2008
Updated By:	Christina Prestella/Steve Frisch
<b>1.0 System Indicator Summary</b>	
Air quality is a measure of an important service provided by natural capital: the provision of air that is clean and does not negatively affect human health. Particulate matter is generated from a variety of sources, including diesel fuel emissions and agricultural operations. Because of the prevailing wind patterns, air pollution standards in the valley have a significant effect on the Sierra Nevada region.	
<b>2.0 Relevance to SNC Program Areas or Mission</b>	
This information can be used by the SNC primarily as a measure of air quality and to educate policy makers on levels and methods to lower emissions.	
<b>3.0 Related Performance Measures</b>	
Tons of Carbon Sequestered or Emissions Avoided, Mass of Pollutant Reduced Per Year, Kilowatts of Renewable Energy Production Capacity Maintained or Created.	
<b>4.0 Data Collection, Analysis &amp; Reporting</b>	
Data is easily accessible online	
<b>4.1 Data Source(s)</b>	
Data Source: <a href="http://www.arb.ca.gov/aqd/aqd.htm">www.arb.ca.gov/aqd/aqd.htm</a> Scale of data reporting: County, Air Basin, or Part of state Scale of data collection: monitoring stations <a href="http://www.arb.ca.gov/aqd/netrpt/allmap.pdf">http://www.arb.ca.gov/aqd/netrpt/allmap.pdf</a> Frequency of data reporting: Hourly	
<b>4.2 System Indicator Reporting</b>	
Report at community, city, county, sub-region and region level. Inconsistent across region.	
<b>4.3 System Indicator Display and Historic Data</b>	
Data can be reported as parts per million/billion, using graphs, over time	
<b>5.0 Notes</b>	
<b>6.0 References Cited</b>	
California Air Resources Board	

Acres Treated for Fuels Reduction by Risk	
Latest Revision:	July 26, 2008
Updated By:	Christina Prestella/Steve Frisch
<b>1.0 System Indicator Summary</b>	
A history of fire suppression has resulted in elevated fire hazard due to accumulation of dead wood, needles, and dense undergrowth. Data on land managed for fuels reduction can inform policy makers and landowners on areas of high fire hazard, and encourage the development of fuels management plans.	
<b>2.0 Relevance to SNC Program Areas or Mission</b>	
This information can be used by the SNC primarily as a measure of natural disaster risk. Acres treated for fuels reduction also has an impact on water and air quality.	
<b>3.0 Related Performance Measures</b>	
Acres of Land Improved or Restored; Tons of Carbon Sequestered or Emissions Avoided; Number and Value of New, Improved or Preserved Economic Activities	
<b>4.0 Data Collection, Analysis &amp; Reporting</b>	
Data is easily accessible online, in map and GIS layer	
<b>4.1 Data Source(s)</b>	
Data Source: <a href="http://frap.cdf.ca.gov/data/frapgismaps/select.asp?theme=5">http://frap.cdf.ca.gov/data/frapgismaps/select.asp?theme=5</a> Scale of data reporting: State, County Scale of data collection: 1:1,000,000 Frequency of data reporting: Annual	
Data Source: <a href="http://frap.cdf.ca.gov/webdata/maps/statewide/frnk_map.pdf">http://frap.cdf.ca.gov/webdata/maps/statewide/frnk_map.pdf</a> Scale of data reporting: State, County Scale of data collection: 1:1,000,000 Frequency of data reporting: Inconsistent	
<b>4.2 System Indicator Reporting</b>	
Report by community, city, county, sub-region and region level.	
<b>4.3 System Indicator Display and Historic Data</b>	
Acres of managed forest should be presented by map and chart	
<b>5.0 Notes</b>	
<b>6.0 References Cited</b>	
California Department of Forestry and Fire Protection	

Public/Private Lands Forest Health	
Latest Revision:	August 25, 2008
Updated By:	Christina Prestella/Steve Frisch
<b>1.0 System Indicator Summary</b>	
Change in land condition, driven by land conversion, land management practices, climate change, wildfire, erosion, change in forest age and exposure to insect infestation and pathogens can be a powerful indicator of land health. The Forest Inventory and Assessment Database (FIA) Forest Health Monitoring data for the Sierra Nevada tracks numerous attributes that can be aggregated to develop a land health indicator.	
<b>2.0 Relevance to SNC Program Areas or Mission</b>	
Public/Private Land Health has a direct nexus to several SNC program areas, including working landscapes, natural disaster risk, use and enjoyment of public lands, water and air quality and living resources. Changes in land health could be interpreted as central to SNC's overall mission of protecting the resources of the region.	
<b>3.0 Related Performance Measures</b>	
Acres of Land Improved or Restored; Tons of Carbon Sequestered or Emissions Avoided Acre Feet per Annum of Streamflow Improved; Acre feet per Annum of Water Supply Conserved or Enhanced; Mass of Pollutants Reduced by Year; Number and Value of New; Improved or Preserved Economic Activities	
<b>4.0 Data Collection, Analysis &amp; Reporting</b>	
Data is easily accessible online, GIS layer, and query based database.	
<b>4.1 Data Source(s)</b>	
<b>Data Source:</b> <a href="http://fia.fs.fed.us/tools-data/docs/pdfs/FIADB_user%20guide%203-0_P3_6_01_07.pdf">http://fia.fs.fed.us/tools-data/docs/pdfs/FIADB_user%20guide%203-0_P3_6_01_07.pdf</a> <b>Scale of data reporting:</b> State, County, Forest Unit <b>Scale of data collection:</b> 1:6,000 <b>Frequency of data reporting:</b> Annual	
<b>4.2 System Indicator Reporting/Scale</b>	
Scale to community, city, county, sub-region and region level.	
<b>4.3 System Indicator Display and Historic Data</b>	
Presented by map and chart	
<b>5.0 Notes</b>	
Data is most precise on public lands where it is ground tested to 1:6,000 acre, least precise on private grasslands where it is inconsistently ground tested	
<b>6.0 References Cited</b>	
<a href="http://fia.fs.fed.us/tools-data/docs/pdfs/FIADB_user%20guide%203-0_P3_6_01_07.pdf">http://fia.fs.fed.us/tools-data/docs/pdfs/FIADB_user%20guide%203-0_P3_6_01_07.pdf</a>	

Percent Change in Temperature, Precipitation and Snowpack			
Latest Revision:	August 21, 2008	Updated By:	Christina Prestella/Steve Frisch
<b>1.0 System Indicator Summary</b>			
Temperature, precipitation and snow pack are three important properties of climate and the impact of climate change in the region. Changes in these indicators may have wide ranging direct or indirect effects on ecological condition and human health.			
<b>2.0 Relevance to SNC Program Areas or Mission</b>			
The potential impacts of climate change have a direct nexus to the SNC's mission of fostering environmental, economic and social well-being in the region and is relevant to numerous SNC program areas: natural disaster risk, air and water quality; preservation of working landscapes; conservation of living resources; tourism and recreation, and use and enjoyment of public lands			
<b>3.0 Related Performance Measures</b>			
Acre Feet per Annum of Streamflow Improved; Acre Feet per Annum of Water Supply Conserved or Enhanced			
<b>4.0 Data Collection, Analysis &amp; Reporting</b>			
Data is online and easily accessible			
<b>4.1 Data Source(s)</b>			
Data Source: Water- <a href="http://cdec.water.ca.gov/snow_rain.html">http://cdec.water.ca.gov/snow_rain.html</a> Scale of data reporting: County, Region, Statewide Scale of data collection: Precipitation stations- <a href="http://cdec.water.ca.gov/misc/RealPrecip.html">http://cdec.water.ca.gov/misc/RealPrecip.html</a> Frequency of data reporting: Hourly			
Data Source: Snow- <a href="http://cdec.water.ca.gov/snow/current/snow/">http://cdec.water.ca.gov/snow/current/snow/</a> Scale of data reporting: County, Region, Statewide Scale of data collection: Precipitation stations- <a href="http://cdec.water.ca.gov/misc/RealPrecip.html">http://cdec.water.ca.gov/misc/RealPrecip.html</a> Frequency of data reporting: Hourly			
Data Source: Snow- U.S. Historical Climatology Network (USHCN) Data Set Scale of data reporting: Station, County, Region, Statewide Scale of data collection: Frequency of data reporting: Hourly			
<b>4.2 System Indicator Reporting</b>			
Report by watershed, test station, aggregate to sub-region and region level.			
<b>4.3 System Indicator Display and Historic Data</b>			
Inches of rainfall/snowpack, represented in line graphs and charts .Temperature represented by line graph over time.			
<b>5.0 Notes</b>			
Can project data as change in date of peak flow over time.			
<b>6.0 References Cited</b>			
California Department of Water Resources- California Data Exchange Center—Desert Research Institute			

Total Quantity and Value of Water Exports			
Latest Revision:	July 16, 2008	Updated By:	Christina Prestella
<b>1.0 System Indicator Summary</b>			
Sierra Nevada water resources provide many different benefits to the state. With the state's ever-growing population, it is important that we quantify and evaluate the value of Sierra Nevada's water supply.			
<b>2.0 Relevance to SNC Program Areas or Mission</b>			
SNC can use data to encourage policy makers to monitor quantities and help them understand the value of water exported to the state.			
<b>3.0 Related Performance Measures</b>			
Acre Feet per Annum of Streamflow Improved; Acre Feet per Annum of Water Supply Conserved or Enhanced			
<b>4.0 Data Collection, Analysis &amp; Reporting</b>			
Data is available online, and is easily accessible			
<b>4.1 Data Source(s)</b>			
Data Source: <a href="http://www.landwateruse.water.ca.gov/annualdata/datalevels.cfm">http://www.landwateruse.water.ca.gov/annualdata/datalevels.cfm</a> Scale of data reporting: Regional, Statewide Scale of data collection: Zip code Frequency of data reporting: Annual			
<b>4.2 System Indicator Reporting</b>			
Report by watershed, sub-region and region level.			
<b>4.3 System Indicator Display and Historic Data</b>			
Units are in thousands of acres, and should be represented in a graph			
<b>5.0 Notes</b>			
<b>6.0 References Cited</b>			
Department of Water Resources			

Carbon Storage and Net Annual Sequestration on Public and Private Forests			
Latest Revision:	July 27, 2008	Updated By:	Christina Prestella/Steve Frisch
<b>1.0 System Indicator Summary</b>			
Carbon dioxide (CO <sub>2</sub> ) stocks can be measured and quantified, resulting in value that can be captured from critical ecosystem services provided by our natural landscapes. Ecosystem services are the functions of nature that humans rely on for survival. The majority of the Sierra Nevada region exists under forest cover. By avoiding deforestation, forest management and conservation of forested properties, landowners can increase net annual sequestration rates and help offset anthropogenic emissions.			
<b>2.0 Relevance to SNC Program Areas or Mission</b>			
This information can be used by the SNC primarily as a measure of natural disaster risk and working landscapes and secondarily as a measure of water and air quality, regional economy and use and enjoyment of public lands			
<b>3.0 Related Performance Measures</b>			
Tons of Carbon Sequestered or Emissions Avoided, Acres of Land Conserved, Acres of Land Improved or Restored; Mass of Pollutant Reduced Per Year; Number and Type of Jobs Created; Number and Value of New, Improved or Preserved Economic Activities			
<b>4.0 Data Collection, Analysis &amp; Reporting</b>			
Data is accessible online			
<b>4.1 Data Source(s)</b>			
Data Source: <a href="http://fiatools.fs.fed.us/fiadb-downloads/fiadb3.html">http://fiatools.fs.fed.us/fiadb-downloads/fiadb3.html</a> <a href="http://ncasi.uml.edu/COLE/">http://ncasi.uml.edu/COLE/</a> Scale of data reporting: County, State Scale of data collection: FIA Plots- 1 every 7,700 acres Frequency of data reporting: Annual			
<b>4.2 System Indicator Reporting</b>			
Report by community, city, county, sub-region and region level.			
<b>4.3 System Indicator Display and Historic Data</b>			
Data should be represented in tons of carbon dioxide, by map, table, and graph			
<b>5.0 Notes</b>			
<b>6.0 References Cited</b>			
US Forest Service Timber Inventory Data & State Forest Inventory Data, California Climate Action Registry			

Megawatt Hours of Energy Produced by Source	
Latest Revision:	July 27, 2008
Updated By:	Christina Prestella/Steve Frisch
<b>1.0 System Indicator Summary</b>	
The Sierra Nevada exports a tremendous amount of electricity to California's urban areas, primarily through hydroelectric generation. This indicator measures all energy output, output by renewable sources as a subset, and output as distributed energy for local use. Investment in renewable, distributed and efficient energy creates more jobs and generates cleaner energy sources. Parts of the Sierra can potentially and already support production of renewable energy.	
<b>2.0 Relevance to SNC Program Areas or Mission</b>	
Data on total output can help describe the value of ecosystem services from the region. This information can be used by the SNC primarily as a measure of regional economy and working landscapes.	
<b>3.0 Related Performance Measures</b>	
Kilowatts of Renewable Energy Production Capacity Maintained or Created; Number and Value of New, Improved or Preserved Economic Activities; Tons of carbon Sequestered or Emissions Avoided	
<b>4.0 Data Collection, Analysis &amp; Reporting</b>	
Data is easily accessible online	
<b>4.1 Data Source(s)</b>	
Data Source: <a href="http://energyalmanac.ca.gov/electricity/index.html#table">http://energyalmanac.ca.gov/electricity/index.html#table</a> Scale of data reporting: County, Region, State Scale of data collection: Zip code Frequency of data reporting: Annual	
<b>4.2 System Indicator Reporting/Scale</b>	
Scale to city, county, sub-region and region level.	
<b>4.3 System Indicator Display and Historic Data</b>	
Indicator data would be displayed in GWH, on a map, chart or graph	
<b>5.0 Notes</b>	
<b>6.0 References Cited</b>	
California Energy Almanac	

Water Quality – Impaired Water Bodies			
Latest Revision:		July 16, 2008	Updated By: Krissy Gilbert
<b>1.0 System Indicator Summary</b>			
Section 303(d) of the 1972 Federal Clean Water Act requires states to identify water bodies that do not meet water quality objectives and are not supporting their beneficial uses. Each state must submit an updated list, called the 303(d) list, to the U.S. EPA every two years. In addition to identifying the water bodies that are not supporting beneficial uses, the list also identifies the pollutant or stressor causing impairment, and establishes a priority for developing a control plan to address the impairment. The 303(d) list identifies impaired water bodies regardless of stressor, thus does not discriminate on severity of impairment.			
<b>2.0 Relevance to SNC Program Areas or Mission</b>			
This information, while imperfect, will help the SNC measure water quality in the region.			
<b>3.0 Related Performance Measures</b>			
Acre Feet per Annum of Water Supply Conserved or Enhanced; Linear Feet of Stream Bank Protected or Restored; Mass of Pollutant Reduced Per Year			
<b>4.0 Data Collection, Analysis &amp; Reporting</b>			
Data are available online and free of charge			
<b>4.1 Data Source(s)</b>			
Data Source: SWRCB §303(d) list Scale of data reporting: miles of river; acres of lake (including location) Scale of data collection: miles of river; acres of lake (including location) Frequency of data reporting: 2 years			
<b>4.2 System Indicator Reporting/Scale</b>			
Major watershed (24 in Region) or sub-region every 2 years.			
<b>4.3 System Indicator Display and Historic Data</b>			
Bar graph of miles or river/acres of lake impaired per sub region. Or map of impaired reaches. Chart of impairment source by water body.			
<b>5.0 Notes</b>			
<b>6.0 References Cited</b>			
<a href="http://www.waterboards.ca.gov/water_issues/programs/tmdl/background.shtml">http://www.waterboards.ca.gov/water_issues/programs/tmdl/background.shtml</a> <a href="http://www.waterboards.ca.gov/centralcoast/TMDL/303dList.htm">http://www.waterboards.ca.gov/centralcoast/TMDL/303dList.htm</a>			

Change in Habitat – Wildlife Habitat Relationship	
Latest Revision:	August 21, 2008
Updated By:	Krissy Gilbert/Steve Frisch
<b>1.0 System Indicator Summary</b>	
This indicator identifies change in wildlife habitat and the relationship between change in wildlife habitat and individual species distribution, abundance and territory based on California Wildlife Habitat Relationship maps, which identify range, distribution, abundance, and seasonality of species and their habitats. It is intended to be a temporary measure of biological diversity.	
<b>2.0 Relevance to SNC Program Areas or Mission</b>	
Change in this area is directly related to preservation of living resources, and secondarily related to every other SNC program area.	
<b>3.0 Related Performance Measures</b>	
Linear Feet of Stream Bank Protected or Restored; Mass of Pollutant Reduced Per Year; Acres of Land Conserved; Tons of Carbon Sequestered or Avoided; Acre Feet of Water Supply per Annum Conserved or Enhanced	
<b>4.0 Data Collection, Analysis &amp; Reporting</b>	
Data are available online and free of charge	
<b>4.1 Data Source(s)</b>	
Data Source: <a href="http://www.dfg.ca.gov/biogeodata/cwhr/">http://www.dfg.ca.gov/biogeodata/cwhr/</a> Scale of data reporting: 3-100 meter polygons Scale of data collection: 3-100 meter variable by species, or species specific Frequency of data reporting: 2-10 years	
<b>4.2 System Indicator Reporting/Scale</b>	
Species specific, by community, city, county, sub-region or region, or by major watershed (24 in Region) or sub-region every 2-10 years.	
<b>4.3 System Indicator Display and Historic Data</b>	
Bar graph or pie chart per habitat type or species, or % change	
<b>5.0 Notes</b>	
<b>6.0 References Cited</b>	
<a href="http://www.dfg.ca.gov/biogeodata/cwhr/">http://www.dfg.ca.gov/biogeodata/cwhr/</a> <a href="http://conserveonline.org/docs/2006/06/SierraNV_plan_LowRes.pdf">http://conserveonline.org/docs/2006/06/SierraNV_plan_LowRes.pdf</a>	

## Potential 'Comprehensive' System Indicators

### **Youth Involvement**

Measures the number of youth involved, quality of experience, and attainment of objectives in youth programs as an indicator of social capital.

### **Rate of Job Growth to Population Growth**

Measures the ratio of new jobs to population growth as an indicator of economic structure.

### **Housing Affordability**

Measures access to affordable housing and a range of housing types within each community as an indicator of social and financial capital and fairness.

### **Sources of Person Income**

Measures the ratio of earned income to transfer payments as an indicator of economic diversity, resilience and demographic change.

### **Number of Visitor Days**

Measures the number of days visited on public and private lands, hospitality stays and a portion of vehicle miles traveled as an indicator of economic diversity and use and enjoyment of public land.

### **Ecosystem Service Payments**

Measures total payments captured for commodity water delivery, water quality improvement, carbon sequestration, water quality trading credits, forest management, energy production, timber production, agricultural production, and all other ecosystem benefits as a ratio to acres of land as an indicator of value of natural capital.

### **Number of and Participation in Arts and Cultural Events**

Measure total participation and number of events as an indicator of civic engagement and cultural diversity.

### **GINI Coefficient**

Measures the distribution of wealth between the top and bottom sectors of the economy as a measure of equity.

### **Millions of Board Feet of Timber Reduced Compared to Growth**

Measures the reduction in living timber on public and private lands resulting from harvest, fire, and other methods compared to the increase in timber resulting from new growth as an indicator of the overall forest economy and risk to forests from increased growth.

### **Number of Substance Abuse Arrests**

Measures the total number of drug and alcohol abuse arrests and participation in abuse prevention programs as an indicator of economic and social stress.

### **Employment Dynamics**

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Measures the percent employment by sector compared to under employment, unemployment and people leaving the system as a measure of economic diversity, resilience and stress.

#### **Public Spending on Public Transportation**

Measures spending on all forms of public transportation as an indicator of air quality, human health and fairness.

#### **Acres of Land and Value (\$) In Production**

Measures agricultural and livestock value-added product and timber production in relationship to number of acres in production as an indicator of working landscapes productivity and economic diversity.

#### **Entrepreneurial Innovation**

Measures the number of new business starts, patents and copyrights per 1,000 persons population as an indicator of economic resilience.

#### **Habitat Connectivity**

Measures the size and connection between un-fragmented landscapes and landscapes of sufficient size for population viability of indicator species as an indicator of biological diversity.

#### **Children with Asthma and Pre-asthmatic Condition**

Measures the number of children with asthma as an indicator of the link between human health and air quality.

#### **Ecological Change**

Measures the variation of range of a number of pre-selected indicator species as an indicator of biological diversity and climate change.

#### **Population Viability of Threatened and Endangered Species**

Measures the viability of a pre-selected set of state and federally listed species as an indicator of biological diversity and effectiveness of habitat management objectives.

#### **Number of Crimes per 1,000 with Violent Crime Subset**

Measures the number of crimes by category across the Region and by community, and compares the number of crimes to the number of violent crimes as an indicator of economic and social stress within the Region.

#### **Socioeconomic Status Index**

Measures the level of poverty and absolute poverty, education level, home ownership, unemployment, and children in families receiving public assistance and indexes them to compare communities and Region as an indicator of social and economic capital.

#### **Health Insurance**

Measures the number of people with health insurance as a percent of population and as a percent of population by age group and socioeconomic status as an indicator of social capital and risk.

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**Over Crowding**

Measures the number of people per bedroom in the Region by community and housing type as an indicator of the economic attainment and stress.

**Fairness Index**

Measures availability of housing, wages, transit, health care and access to community decision-making processes as a measure of equity.

**Acres in Organic Agricultural Production**

Measures the number of acres in organic production and acres converted to agricultural production by \$ value and by acreage of organic crop as an indicator of economic diversity, land health and human health.

**Recreational Access Points**

Measures the number of boat launches, trail access points, miles of trail by type and parking places relative to access as an indicator of public use and enjoyment of the land.